TECHNICAL SUPPORT AND POTENTIAL TO EMIT DOCUMENT

May 2005, Revised February 2009

I. GENERAL COMMENTS:

A. Company Information

1. City of Tucson Environmental Services

2. Physical Address:

7301 E. Speedway Blvd
Tucson, AZ 85710

Mailing Address:

100 N. Stone, 2nd Floor
Tucson, AZ 85701

B. Background

The City of Tucson (COT), Vincent Mullins Landfill (VML) had been permitted since 1976 and accepted waste until 1987. VML had not accepted any waste from 1987 until 2005. Waste was accepted from January 2005 – April 2005 from a neighboring landfill in order to bring VML to closure grades. The source is only permitted because it uses two (2) flares to control emissions from the VML landfill and the adjacent Speedway Landfill (SL). This is a revision of the renewal of the first 5-yr permit first issued to VML in 1999.

C. Attainment Classification

VML is in an area of attainment for all pollutants

II. SOURCE DESCRIPTION

A. Process Description

VML was a solid waste collection facility. The emissions sources at VML are candle flares used to control emissions from the landfill gas (LFG) extraction systems. The primary components of LFG are methane (≈ 50%) and carbon dioxide (≈ 50%). VOCs are also extracted from the waste mass by the extraction system. Decomposition of solid waste results in the generation of methane, carbon dioxide and volatile organic compounds. The extraction systems prevent migration of LFG away from the waste mass laterally and vertically to possible nearby structures and ground water.

The main pollutant at the source is carbon monoxide (CO) and insignificant quantities of nitrogen oxides, (NOx), particulate matter (PM), volatile organic content (VOCs) and sulfur dioxides (SO_2).

B. Air Pollution Control Equipment

The air pollution control equipment (APC) at the source are candle flares. Gases are extracted from the wells and directed through the blowers to the candle flares where the gas is combusted and VOCs destroyed. The gas extraction systems provide the candle flares with methane gas of sufficient volume and quality to ensure the combustion of the non-methane organic compounds (NMOCs) and hazardous air pollutants (HAPs) that have been detected in landfill gas at VML and SL. The only release of LFG occurs on the discharge side of the blowers where there are "fail closed" pneumatic valves. The valves will automatically close and the blowers will be turned off if the temperature in the flare shroud drops below the auto-ignition temperature of methane (650°F) or if there is a loss of power to the blowers.

III. REGULATORY HISTORY

A. Testing & Inspections

The source is currently permitted under a 5-yr permit issued on 12/06/99.There have been regular inspections, and there has not been a history of any compliance problems. The source was last inspected on 12/10/03 and was in compliance. A Minor Revision in January 2009 added the SL flare to the permit.

B. Excess Emissions

VML has had no excess emissions or reports of permit deviations.

IV. EMISSIONS ESTIMATES

Samples of LFG at VML taken on 01/06/04 were characterized by lab analysis. The methane was measured at 41%. VML in its application provided estimates of both controlled & uncontrolled hourly and yearly maximum potential to emit (PTE) for compounds found at the VML. The minor revision application dated January 22, 2009, included test results from October 2008, measuring the SL methane at 27.9%, and calcuations for resulting PTE for the SL. The regulated pollutants present in the LFG include: hydrogen sulfide, VOCs, and HAPs. Methane, carbon dioxide, and nitrogen are not regulated air pollutants and are thus not considered for PTE.

The candle flares use methane from the LFG as the fuel source for combustion. The high concentration of methane in the LFG and the potentially high gas extraction rate require a candle flare capable of combusting up to 32 MMBtu per hour. Criteria pollutants from the candle flare include: NOx, CO, SO_2, and PM.

The current maximum flow capacity of the blower at the VML is 520 dscfm as submitted as part of a November 2006 235.B Change. The SL blower capacity submitted in the January 2009 Minor Revision is also 520 dscfm. The controlled PTE from the plant operating 8760 hours per year is as follows:

Emission Unit	NO_X	CO	SO_2	VOC	PM_{10}
Vincent Mullins LFG - Flare # 2	2.24	42.0	0.47	0.0688	0.95
Speedway LFG – Flare # 1	1.53	28.60	4.91	0.06	0.65
Total	3.77	70.6	5.38	0.1288	1.6

The table shows that VML Facility is a true minor for all pollutants and would be classified as a Class II True Minor source.

V. APPLICABLE REQUIREMENTS

NSPS

The following reporting provision of the NSPS rule applies to the source:

<u>40 CFR 60 Subpart WWW</u> (Standards for Performance for Municipal Solid Waste Landfills). The source went through a modification (January 2005 – April 2005) after the applicability date of May 30, 1991. The only part of this subpart that applies is the design capacity reporting provision.

NESHAP

No NESHAP rules apply. The following NESHAP rules could but do not apply for the following reasons:

40 CFR 61 Subpart F (National Emission Standards for Vinyl Chloride) does not apply since VML's Vinyl Chloride concentrations are well below the 10 ppmv in the standard.

40 CFR 61 Subparts J, L, Y, BB & FF do not apply because VML does not meet the criteria for these subparts.

PCC

The following PCC rules apply: 17.12.180, 17.16.050.A, B.2 & D, 17.16.080.A & C, 17.16.390.C.2 & 17.16.430.A.1.a, 2 & 3, 17.16.430.D, F, G & I.

PCC 17.16.390 (Standards for Performance for Existing Municipal Solid Waste Landfills) applies because VML had accepted waste after May 30, 1991, from January 2005 to April 2005.

VI. PERMIT CONTENTS

A. Emission Limits/ Standards:

Candle Flare

17.16.430.A.1.a	PM emission limit
17.16.430.A.2	SO_2 emission limit
17.16.430.A.3	NOx emission limit
17.16.430.D	Odor Limiting Standard
17.16.430.F	Processing of VOCs
17.16.430.G	Use of abatement equipment
17.16.430.I	Complete combustion of waste gases

Operational Limitation

17.12.185.A.2	Operate & Maintain flare according to manuf. specs.
17.12.185.A.2	Install & maintain a temp recording device w/ an accuracy of +/- 5 ^{o}F
17.12.185.A.2	Maintain process temp above 650 ^{o}F
17.12.185.A.2	Install & maintain flow meter

Fuel Limitation

17.12.190.B	Fuel limitation

Facility-wide Standards

17.16.050.B.1 and 17.16.010.B	Opacity Standard
17.16.050.D	Visibility Limiting Standard
17.16.080	Vacant Lots & Open Spaces
17.16.030	Odor Limiting Standard

B. Monitoring Requirements:

Candle Flares

17.12.185.A.3	Weekly Odor Checks

None required for NOx, SO_2, PM_{10}, unless requested by control officer.

Facility-wide

17.12.185.A.3	Bi-weekly Opacity checks
17.12.185.A.3	Weekly Odor checks

D. Recordkeeping Requirements:

Candle Flares

17.12.185.A.4	Record results of weekly Odor checks

Facility-wide

17.12.185.A.4	Record results of bi-weekly Opacity checks
17.12.185.A.4	Record results of weekly Odor checks

E. Reporting Requirements:

All Operations

Landfill Design Capacity Report	40 CFR 60.757.a.2.i & 17.16.390.C.2
Excess emissions and permit deviation reporting	17.12.185.A.5.b & 17.12.185.E.3.d
Emissions Inventory reporting	17.12.320

F. Testing Requirements:

17.12.185.A.3.a	Compliance with opacity standard.
17.12.185.A.3.a	None unless requested by Control Officer for NO_X, SO_2, PM_{10}.

G. Alternate Operating Scenarios: The applicant has not requested any alternate operating scenarios.

H. Miscellaneous Comments: None

VII. IMPACTS TO AMBIENT AIR QUALITY Not a major source and so no studies are required.

VIII. CONTROL TECHNOLOGY DETERMINATION No control technologies needed to be determined.

IX. PREVIOUS PERMIT CONDITIONS None that need to be addressed in this revision.